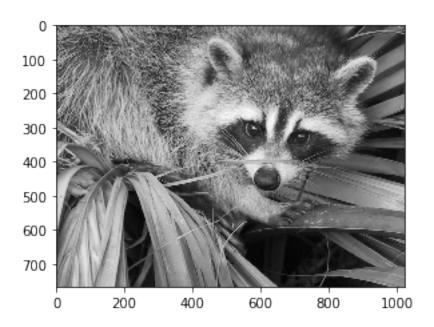
ML_9 Assignment

March 28, 2019

```
In [1]: """In this assignment students have to compress racoon grey scale image into 5 cluster
        the end, visualize both raw and compressed image and look for quality difference.
        The raw image is available in spicy.misc package with the name face.
        Hint:
        import numpy as np
        from sklearn import cluster, datasets
        from scipy import misc"""
        #Import Libraries
        import numpy as np
        from sklearn.cluster import KMeans
        import scipy.misc
        import matplotlib.pyplot as plt
        %matplotlib inline
        #Visualize the gray scale image
       f = scipy.misc.face(gray=True)
       plt.figure(figsize=(10, 3.6))
       plt.imshow(f, cmap=plt.cm.gray)
       plt.show()
```



In [2]: # Compressing the gray scale image into 5 clusters $\,$

```
rows = f.shape[0]
cols = f.shape[1]

image = f.reshape(rows*cols,1)
kmeans = KMeans(n_clusters = 5)
kmeans.fit(image)

clusters = np.asarray(kmeans.cluster_centers_)
labels = np.asarray(kmeans.labels_)
labels = labels.reshape(rows,cols);

# Save the compressed image

plt.imsave('compressed_racoon.png',labels);

# Visualize the compressed image

image = plt.imread('compressed_racoon.png')
plt.figure(figsize=(10, 3.6))
plt.imshow(image)
plt.show()
```

